(19) World Intellectual Property Organization International Bureau



23 DEC 2004

(43) International Publication Date 8 January 2004 (08.01.2004)

PCT

(10) International Publication Number WO 2004/002879 A1

- (51) International Patent Classification⁷: C01B 3/02, C01C 1/04, B01F 5/04, C01B 3/52
- (21) International Application Number:

PCT/EP2003/005049

(22) International Filing Date: 14 May 2003 (14.05.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 02014421.8

28 June 2002 (28.06.2002) EP

- (71) Applicant (for all designated States except US): AMMO-NIA CASALE S.A. [CH/CH]; Via Sorengo, 7, CH-6900 Lugano-Besso (CH).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): DEBERNARDI, Sergio [CH/CH]; Via Somaini, 7, CH-6900 Lugano (CH).
- (74) Agent: ZARDI, Marco; M. Zardi & Co. S.A., Via Pioda, 6, CH-6900 Lugano (CH).

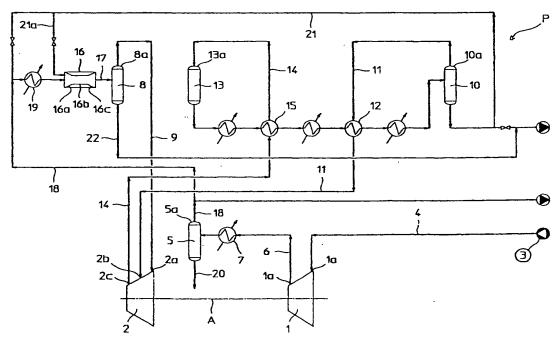
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR AMMONIA SYNTHESIS GAS PRODUCTION



(57) Abstract: Method for ammonia production through a catalytic reaction of pressurised synthesis gas in an appropriate compressor with many stages (1, 2), each of which is equipped with an inlet and outlet (la, 2a, lb, 2b) for said synthesis gas said method including a purification step through liquid ammonia of said synthesis gas from water and carbon dioxide contained in it.